

# METHOD FOR PRODUCING MULTICOLOR PRINTING

## FIELD OF THE INVENTION

**[001]** The present invention is directed to a method for producing multicolor printing. Coated printing plates are provided digitally with images and/or print in correct registration in an exposure and development unit. These printing plates can be Re-used.

## BACKGROUND OF THE INVENTION

**[002]** In the prior art, the direct illustration of printing formes from a digital data store from the pre-print stage, such as the prepress area, takes place by the utilization of one of three systems as discussed in the publication Teschner, "Offsetdruck-technik" [Offset Printing Techniques], 1995, publ. by Fachschriftenverlag. These three systems are as follows:

**[003]** Transferring all digital image data for all ink colors to individual printing plates outside of the printing press = computer-to-plate.

**[004]** Transferring all digital image data for all ink colors to several printing plates in the printing press = computer-to-press.

**[005]** Transferring all digital image data for all ink colors to Re-writable printing forme cylinders, such as image carrier drums in the printing press = computer-to-print.

**[006]** While disposable printing plates; i.e. printing plates that cannot be used again, are employed with the first two systems set forth above, no printing plates are used with the third system. Instead, the printing forme cylinder itself is provided with images.

**[007]** It is a limitation of these prior art systems that none of the three above-

described systems offers an efficient solution, in particular in connection with multicolor printing in a large format.

## OBJECT AND SUMMARY OF THE INVENTION

[008] It is the object of the present invention to provide a method which accomplishes an efficient solution for multi-color printing, in particular in a large format.

[009] In accordance with the present invention, this object is attained by the provision of a method for producing multicolor printing using printing plates provided digitally with images and/or print. Previously used printing plates are removed from a forme cylinder and are neutralized in a suitable neutralizing device. This neutralization removes the prior images or print. These plates may then be coated and the now neutralized and possibly coated plates are placed, in correct registration, in an exposure and development unit. The plates are then exposed and developed. These plates, which have now been provided digitally with new images and /or print are then again applied to the printing forme cylinder.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0010] At the conclusion of the production of a multi-color printing task or job in a printing press, the printing plates that were used for the multi-color printing job are removed from the printing forme cylinders on which they had been clamped. This plate removal is typically accomplished through the use of automatic plate-changing devices, with which the used printing plates are removed from the printing forme cylinders. These automatic plate-changing devices then are used to also supply fresh printing

plates to the printing forme cylinders.

[0011] Once they have been removed from the printing forme cylinders, the used printing plates are then conducted to a device for neutralizing the used printing plates and are neutralized there. In this context, neutralization of the plates is understood to mean that the previously used printed image and/or print is removed from the printing plates. This removal takes place by means of a chemical, a mechanical or a thermal process, and preferably by means of laser techniques. An essentially even surface tension is achieved by means of the neutralization.

[0012] Thereafter, the now neutralized or cleaned printing plate is again provided with new images and/or print. This provision of new images and/or prints may take place in one way directly, for example by means of an ink jet printer or a transfer tape, or in another way by means of the use of a pre-applied imprinting of the printing plate; i.e. lacquer and photo-sensor device or thermal layer. This application of new images and/or print onto the printing plate takes place digitally from digital data sets (CtP).

[0013] In order to assure the capability of the newly applied images and/or prints placed on the printing plates to be in proper alignment or registration when the printing plates are Re-installed on the printing forme cylinder, the printing plate must be situated in place in the exposure unit in proper registry by use of the registration system of the printing itself, or through the use of a second registration system which makes reference to the registration system of the printing plate. This second registration system must be designed to be dimensionally stable.

[0014] Following the application of these new images and/or print, including their

development, the printing plates are again brought to the printing forme cylinder, and  
are Re-installed on the printing forme cylinder preferably by operation of the automatic  
plate-changing device.

**[0015]** The printing plate used for this method is preferably made of special steel,  
is dimensionally stable and is free of depressions. This printing plate can be provided  
with further improvements of the surface known for offset printing, for example a  
chromium layer.

**[0016]** While a preferred embodiment of a method for producing multicolor  
printing in accordance with the present invention has been set forth fully and completely  
hereinabove, it will be apparent to one of skill in the art that various changes in, for  
example the material to be printed, the specific type of press and the like could be  
made without departing from the true spirit and scope of the present invention which is  
accordingly to be limited only by the following claims.

WHAT IS CLAIMED IS: